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Date: April 27, 2007 By Marissa Smith

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Alteco Technik GmbH

Inventor: Jutta Lindmann

Atty. Docket No: 063665.00001

Appln. No.: 10/825,725

Group Art Unit: 1713

Filed: April 15, 2004

Examiner: William K. Cheung

Title: (METH)ACRYLATE RESINS AND THEIR USE

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BRIEF ON APPEAL

Pursuant to 37 C.F.R. § 1.192, Appellant, Jutta Lindmann, submits this appeal brief and with the required fee under 37 C.F.R. § 41.20 (b)(2), appealing the final rejection of the claims of the above-identified application under 35 U.S.C. § 103(a).

Pursuant to 37 C.F.R. § 41.37(e) and 37 C.F.R. 1.136(a), Applicant hereby petitions to extend the time for filing the brief three (3) months up to and including Monday, April 30, 2007 (April 28, 2007 being a Saturday) and encloses the required petition fee.

The Commissioner is hereby authorized to charge any fees which may be required for the filing of this Appeal Brief, or credit any overpayment to Deposit Account No. **19-3878**.

04/30/2007 RFEKADU1 00000021 193878 10825725

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I. REAL PARTY IN INTEREST

Alteco Technik GmbH, a corporation organized and existing under the laws of Germany,
is the real party in interest for this appeal.

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II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

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III. STATUS OF CLAIMS

Claims 1 to 25 are pending in this application and are reproduced in the Claims Appendix.

Claims 22 to 25 are withdrawn from consideration pursuant to a restriction requirement. Claims 1 to 21 are subject to this appeal. The claims stand finally rejected as follows:

Claims 1 to 21 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6552,130 to Makino et al. (hereafter "Makino") in view of U.S Patent No. 6,211,259 to Borden et al. (hereafter "Borden").

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IV. STATUS OF AMENDMENTS

There are no pending, unentered amendments.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a (meth)acrylate resin composition comprising methyl(acrylate), a polymer soluble in (meth)acrylate, paraffin, hydroxyl(meth)acrylate and an adhesion promoter. Specification, page 3, ¶ [00010]. Suitable applications for the resins of the invention include repairing and sealing pipes. Specification, page 2, ¶ [0009]. As recited in claim 1, the (meth)acrylate resin composition comprises 20-85% by weight meth(acrylate), 10-40% by weight a polymer soluble in (meth)acrylate, 0.1 to 2% by weight paraffin, 0 to 50% hydroxyl(meth)acrylate and 0.1 to 2% adhesion promoter, where the adhesion promoter is a phosphoric ester. Specification, page 3, ¶ [00010] and page 4, ¶ [00026].

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issue for consideration in this appeal is whether claims 1 to 21 are unpatentable under 35 U.S.C. § 103(a) over Makino in view of Borden.

VII. ARGUMENT

**Rejection of Claims 1 to 21
under 35 U.S.C. § 103(a) over Makino et al. in view of Borden et al.**

A. Introduction.

Claims 1 to 21 stand rejected under 35 U.S.C. § 103(a) over Makino in view of Borden. In order to sustain a valid §103(a) obviousness rejection three criteria must be met: (1) the references when combined must teach each or suggest all of the claim limitations, (2) there must be some suggestion or motivation to modify or to combine the reference teachings, and (3) there must be a reasonable expectation of success. MPEP § 2143. An obviousness determination must also be based on considering the claimed invention as a whole. Jones v. Hardy, 727 F.2d 1524, 1529 (Fed. Cir. 1984). Further, all claim limitations are significant, and must be given weight. Application of Saether, 492 F.2d 849, 852 (C.C.P.A. 1974).

The rejection of claims 1 to 21 should be withdrawn since the combined references do not teach or suggest each and every element of any of the pending claims and there is no suggestion or motivation to modify or combine the references to arrive at the inventions as claimed in this Application.

B. Makino.

Makino relates to (meth)acrylate resins compositions for use in civil engineering and construction applications, such as coatings for concrete, asphalt, other road surfaces, or floor or wall surfaces. Makino teaches three (3) different (meth)acrylate resins compositions (see Makino, column 2, line 46 to column 3, line 15) comprising components: (A) a methacrylic acid ester, (B) an acrylic polymer soluble in the component (A), and either:

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- (1) component (C), a compound having a mercapto group and a carboxyl group, for example, thiosalicylic acid (id. at column 2, lines 49-50 and 54-67); or
- (2) component (C) in combination with component (F), an organic amine (id. at column 2, lines 50-51 and column 3, lines 1-8); or
- (3) a combination of component (F) and component (G), a radical trapping agent (id. at column 2, lines 50-52 and column 3, lines 9-15).

In summary, Makino teaches three resin compositions that comprise either (1) (A) + (B) + (C), or (2) (A) + (B) + (C) + (F), or (3) (A) + (B) + (F) + (G). Accordingly, Makino specifically teaches that the compositions must comprise component (C), (C) + (F) or (F) + (G). Nowhere in Makino is there any teaching or suggestion that (meth)acrylate resin compositions can be formulated where component (C), (C) + (F) or (F) + (G) are omitted from the resin compositions comprising (A) and (B). In the (meth)acrylate resins compositions taught by Makino components (C), (C) + (F) and (F) + (G) are polymerization initiators. The importance of these necessary components in Makino is that they solve problems encountered in the prior art associated with the use of redox-type polymerization initiators including weathering resistance, yellowing with age, cure time, pot-life, and/or the use of aqueous solvents systems. See column 1, line 26 to column 2, line 34. This is further illustrated by comparative examples 1-7 describe in Makino that show omission of component (C), (C) + (F) or (F) + (G) from the (meth)acrylate resin composition leads to the undesired properties described above. Id. columns 15-16, table 1, columns 19-20, table 2, and columns 21-22, table 3. Thus to combine Makino with Borden as suggested by the Examiner to arrive at Applicant's invention a person skilled in the art would first have to recognize that component (C), (C) + (F) or (F) + (G) can be omitted from the formulations of Makino, which is contrary to Makino's teaching. Therefore Makino teaches

away from Applicant's claims. See MPEP § 2141.02, ¶ IV (a prior art reference must be considered in its entirety including portions that would lead away from the claimed invention).

C. **Borden.**

The Examiner appears to be of the opinion that Borden teaches the compatibility of phosphoric acid ester adhesion promoters with the meth(acrylate) materials taught by Makino. Advisory Action, continuation sheet. As stated by the Examiner, "Borden discloses using phosphoric or polyphosphoric acid esters to enhance adhesion properties of composite materials. Therefore, motivated by the expectation of success of improving the adhesion properties of composite materials, it would have been obvious to one of ordinary skill in the art to incorporate phosphoric or polyphosphoric acid esters into the composition of Makino et al. to obtain the invention of claims 1-21." Office Action dated 2/14/2006, page 6, ¶ 4. In contrast to Makino and Applicant's invention, Borden teaches polyurethane and polyurethane foam compositions comprising the reaction product of an isocyanate A-side component and a B-Side component comprising polyols and a polyhydric alcohol. Borden, abstract. The polyurethane compositions are applied to cosmetic substrate layers formed of materials such as thermoplastic, acrylic, and gel coat materials. Id. According to Borden an adhesion promoter, such as a phosphoric or polyphosphoric acid ester, may be incorporated into the B-Side component to improve the adhesion of the polyurethane and polyurethane foam compositions to cosmetic substrates. Id. column 16, lines 5-40. Specifically, Borden teaches the incorporation of an adhesion promoter in the B-Side component of polyurethane and polyurethane foam resin compositions to improve the adhesion properties of the resin to cosmetic substrates. There is no teaching or suggestion in Borden that the properties of the adhesion promoters taught, particularly the phosphoric or polyphosphoric acid esters, would be compatible with any other type of resin compositions with

chemistries different to those of polyurethanes, or would improve the adhesion of other resin systems to surfaces. The chemistry and the adhesion behavior of acrylic polymers and polyurethane polymers are significantly different, for example, in regard to properties such as polarity and hydrophobicity/hydrophilicity. Further, there is no teaching or suggestion that the adhesion problem exists with the cosmetic substrate or that adding an adhesion promoter to the cosmetic layer would solve the adhesion problem described by Borden for adhering polyurethane resin compositions to cosmetic layers, including acrylic materials. Thus there is no teaching, suggestion or motivation provided by Borden that a phosphoric or polyphosphoric acid ester adhesion promoter would be useful in improving the adhesion properties of the acrylic resin compositions of Makino or that these adhesion promoters would be compatible with the monomer and other components that form acrylic resin compositions.

Borden also teaches that the adhesion promoters should be miscible with or dissolve in the B-Side component of the polyurethane composition. Borden, column 16, lines 32-34. In Applicant's invention the phosphoric ester adhesion promoter is added to the liquid resin composition for preparing the polymeric acrylic resins, which have very different chemistries to those of the B-side component of the polyurethane resin compositions taught by Borden. There is no teaching in Borden that the adhesion promoters can be added to the materials that form the cosmetic substrates to improve adhesion of the polyurethanes to the substrates. Thus there are no expectations based on the teachings of either Borden alone or when combined with Makino that phosphoric or polyphosphoric acid esters useful in polyurethane resin chemistry would have these properties in acrylic resin systems or would be compatible with the very different chemistry and adhesion properties of acrylic resin compositions.

Makino indicates that it is possible to add a silane coupling agent for the purpose of stabilizing the bonding of the (meth)acrylate resin compositions taught with a substrate. Makino, column 10, lines 1-8; also see Office Action dated 2/14/2006, page 4, ¶1. However, Makino does not teach, suggest or provide motivation that other adhesion promoters are useful in (meth)acrylate resin compositions. Thus it is not obvious, nor is there the motivation, from the teachings of Makino combined with Borden that one can substitute the adhesion promoters taught in Borden in the compositions of taught by Makino.

Borden therefore provides no teaching, suggestion or motivation that phosphoric or polyphosphoric acid esters can be utilized as adhesion promoters in (meth)acrylate resins compositions. Therefore someone skilled in the art of acrylic resin chemistry has no motivation to modify or combine the disclosure of Makino with that of Borden, and there is no motivation based on an expectation of success. It is impermissible for motivation to combine references based on an expectation of success to be based on hindsight provided by the invention itself. MPEP § 2142.

D. The Claimed Invention.

Applicant claims a (meth)acrylate resin composition that comprises (meth)acrylate, a polymer soluble in (meth)acrylate, paraffin, hydroxyl(meth)acrylate, and a phosphoric ester adhesion promoter. Applicant's compositions as disclosed can be advantageously used for repairing and sealing pipes, where good adhesion and leak-proofness are required properties. Applicant's invention does not require either a compound having a mercapto group and a carboxyl group (Makino's component (C)), a compound having a mercapto group and a carboxyl group (component (C)) combined with an organic amine (Makino's component (F)), or an organic amine (component (F)) combined with a radical trapping agent (Makino's component

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(G)) as required by Makino. These components are specifically taught and required in the resin compositions taught by Makino to solve the problems of the prior art. Makino, column 2, lines 38-53. Makino provides no motivation or suggestion to modify or omit components (C), (C) + (F) or (F) + (G) from the resin compositions taught. In fact, Makino in the introduction and in the examples teaches away from omitting these components from (meth)acrylate formulations. For example, the compositions in comparative examples 1 to 7 shown in tables 1-3 of Makino without components (C), (C) + (F) or (F) + (G) demonstrate undesirable properties such as no curing, not curing completely, a high yellow index and/or poor weathering resistance. Id. columns 15-16, table 1, column 19-20, table 2, and column 21-22, table 3. Thus to arrive at Applicant's invention, starting from the disclosure of Makino, someone skilled in the art would first have to recognize that components (C), (C) + (F) or (F) + (G) can be omitted from the (meth)acrylate resin compositions of Makino, and second would have to find the motivation to incorporate a phosphoric or polyphosphoric acid ester taught by Borden for polyurethane compositions. Therefore Makino either alone or when combined with Borden teaches away from Applicant's invention. A reference that teaches away from a particular combination or modification rebuts a prima facia showing of obviousness. In re Geisler, 116 F.3d 1465 at 1471 (Fed. Cir. 1997). If even a single claim limitation is not taught or suggested by a reference, then it cannot be obvious over that reference. Application of Glass, 472 F.2d 1388, 1392 (C.C.P.A. 1973).

E. Claims 1 to 13, 16, 18, 20 and 21 are not Obvious Over Makino in View of Borden.

Claim 1 is independent and claims 12-13, 16, 18, 20 and 21 depend from claim 1.

Claim 1 recites a (meth)acrylate resin composition comprising 20-85% by weight meth(acrylate), 10-40% by weight a polymer soluble in (meth)acrylate, 0.1 to 2% by weight

paraffin, 0 to 50% hydroxyl(meth)acrylate, and 0.1 to 2% adhesion promoter, where the adhesion promoter is a phosphoric ester.

Makino combined with Borden does not disclose or suggest each of the limitations of claim 1, nor do these references suggest a modification to arrive at an invention having the limitations of claim 1. In particular, neither Makino nor Borden, alone or in combination, teach, suggest or provide the motivation to use a phosphoric ester adhesion promoter in (meth)acrylate resin compositions.

1. There is no Suggestion to Combine Makino and Borden.

The Examiner states that Makino discloses methacrylate resins compositions that are similar to the resin composition as claimed. Office Action dated 2/14/2006, page 3, ¶ 5 to page 4, ¶1. The Examiner admits that Makino does not disclose a single embodiment comprising a hydroxy(meth)acrylate, and that Makino is silent on the specific combination of primary and secondary stabilizers as claimed. Id. at page 4, ¶2. Further, the Examiner admits that one difference between Applicant's invention and Makino is that "Makino is silent on a composition comprising phosphoric acid esters." Id. at page 6, ¶ 3. The Examiner then states that "motivated by the expectation of success of improving the adhesion properties of composite materials, it would have been obvious to incorporate phosphoric or polyphosphoric acid esters disclosed by Borden into the composition of Makino to obtain the invention claims 1-21." Id. at page 6, ¶4. Applicant submits that this is merely improper hindsight reasoning improperly using Applicant's specification as a guide since there is no teaching in Makino or Borden, either alone or in combination.

The Examiner argues that "(m)otivated by the expectation of success of obtaining resin system that can be cured by redox-type polymerization initiator (Makino, column 1, lines 26-32),

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it would have been obvious to one of ordinary skill in the art to use a mixture of the disclosed list of functionally equivalent (meth)acrylic ester [Makino, column 3, lines 19-48] to obtain the invention of claims 1-19, 21.” Office Action dated 2/14/2006, page 4, ¶3 to page 5, ¶1.

Applicant respectfully disagrees with this reasoning since Makino specifically teaches away from the use of redox-type polymerization initiators for (meth)acrylate resin compositions at column 1, lines 26-32 because of problems with weathering resistance and yellowing with age. In particular, Makino teaches that “[w]hen using a redox-type polymerization initiator comprised of an organic peroxide and a tertiary amine … there are problems that since an amine is used as a co-catalyst, the weathering resistance is poor and the cured covering yellows along with aging.” Makino, column 1, lines 26-32. This is further illustrated by the comparative examples in Makino where the polymerization initiators required by Makino (components (C), (C) + (F) or (F) + (G)) are omitted. For example, comparative Example 6 of Makino demonstrates the problems associated with yellowing when using redox-type polymerization initiators. Id. at column 19 and 20, Table 2. Makino therefore teaches away from omitting components (C), (C) + (F) or (F) + (G) in (meth)acrylate compositions. When a reference teaches away from a particular combination or modification it rebuts a prima facia showing of obviousness. In re Geisler, 116 F.3d 1465, 1471 (Fed. Cir. 1997). Further, for equivalence to be a rationale supporting an obviousness rejection the “equivalency must be recognized in the prior art, and cannot be based on Applicant’s disclosure or the mere fact that the components at issue are functional or mechanical equivalents.” MPEP § 2144.06. This is not the case in Makino either alone or when combined with Borden. Here, to combine Makino with Borden to arrive at Applicant’s invention as suggested by the Examiner the first step is recognizing that components (C), (C) + (F) or (F) + (G) can be omitted from the (meth)acrylate formulations of Makino.

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Makino provides no motivation to omit these components. This is illustrated by the comparative examples of Makino that show when components (C), (C) + (F) or (F) + (G) are omitted unsatisfactory results are obtained and the formulations are unsatisfactory for their intended purpose. Where a proposed modification would render the invention disclosed in a cited reference unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the modification. In re Gordon, 733 F.2d 900 (Fed. Cir. 1984).

In the rejections the Examiner admits that Makino is “silent on embodiments comprising phosphoric acid esters,” but that the limitation would be obvious by combining Makino with Borden motivated by an expectation of success. Office Action dated 2/14/06, Page 6, ¶ 3. However, the Examiner fails to show any suggestion or motivation to combine the references.

As discussed above, Makino teaches that “it is possible to further add a silane coupling agent” to the (meth)acrylate compositions taught for improving the bonding strength of resin with fillers or stabilizing the bonding with a substrate.” Makino, column 10, lines 3 to 8. Unlike the composition of Applicant’s claim 1, Makino does not teach that a coupling agent is a required element of the composition. There is also no teaching, suggestion or motivation provided by Makino that the silane coupling agents taught can be replaced in the (meth)acrylate compositions by any other type of coupling agent, let alone a phosphoric esters claimed by Applicant. Further, to replace the silane coupling agent specifically taught by Makino, a person skilled in the art would first have to recognize that components (C), (C) + (F) or (F) + (G) in the compositions taught by Makino may be omitted, as discussed above, and then be motivated to replace the silane coupling agents with another coupling agent. There is no motivation provided by Makino that omitting components (C), (C) + (F) or (F) + (G) and replacing the coupling agent

with another will lead to materials with the properties of the compositions of Applicant's claims that are required for the intended purpose.

In order to establish a prima facia case for obviousness under §103, the Examiner must show that a person of average skill in the art would have known to modify a cited reference to implement the claimed invention. In re Fritch, 972 F.2d 1260, 1265 (Fed. Cir. 1992); MPEP § 2143.01, ¶ III (“The mere fact that reference can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination”). Makino combined with Borden does not suggest the desirability of the combination suggested by the examiner. Further, there must be some suggestion or motivation found within the references to make the combination or modification. Id. The cited references do not suggest or provide the motivation to make the modification suggested by the Examiner.

In this case, the Examiner has not shown any teaching or suggesting in the art that would teach a person skilled in the art to modify the formulation taught by Makino to first omit components (C), (C) + (F) or (F) + (G) and, second, to then use the adhesion promoting additive taught by Borden for polyurethane resins. “The level of skill in the art cannot be relied upon to provide the suggestion to combine references.” See MPEP § 2143.01, ¶ IV (citing Al-Site Corp. v. VSI Intern., Inc., 174 F.3d 1308, 1324 (Fed. Cir. 1999)).

2. The Proposed Combination Does Not Teach Each and Every Limitation of Claim 1.

Even assuming the references are combined and modified as suggested by the Examiner, the combination and modification still does not teach the invention as set forth in claim 1.

The Examiner has responded in the Advisory Action that the adhesion promoter of Borden is not restricted to polyurethane applications because Borden in the Abstract clearly

teaches its compatibility with thermoplastic, acrylic and gel coat material that are "very similar to" the acrylic composition of Makino. Advisory Action, Continuation Sheet, and Office Action dated August 23, 2006, page 3. Applicant respectfully submits that the Examiner has overlooked the differences between the teachings of Borden and those of Makino as discussed above.

Borden does not teach or suggest that the adhesion problems exist with the thermoplastic, acrylic and gel coat materials or that the addition of adhesion promoters to cosmetic layers would solve the adhesion problems of the polyurethane coatings to cosmetic layers, or that the phosphoric or polyphosphoric ester acids would be compatible with the chemistry of the precursors of cosmetic layers, let alone with (meth)acrylate resins that could form cosmetic layers.

Therefore, claim 1 is not obvious under Makino in view of Borden. Applicant therefore respectfully submits that claim 1 is in a condition for allowance. Claims 2-13, 16, 18, 20 and 21 all ultimately depend from claim 1 and are also believed to be in a condition for allowance.

F. Claims 14 and 15 are not Obvious Over Makino in View of Borden.

Claims 14 and 15 depend from claim 1 and recite a (meth)acrylate resin composition where the composition further comprises 2,6 di-tert butyl-4-methyl phenol as a stabilizer and tri-(2,4 di-tert butyl phenyl)phosphite as a co-stabilizer. In rejecting claims 14 and 15, the Examiner in the Office Action dated 2/14/2006 at page 5, ¶ 2, refers to Makino at column 10, lines 15-20, as disclosing 2,4-dimethyl-t-butylphenol for improving storage stability. The Examiner claims that "motivated by the expectation of success that the disclosed composition can be benefited from using a stabilizer, it would have been obvious to one of ordinary skill in the art to look for other stabilizer, especially the combination use of common primary and secondary stabilizers such as the ones as claimed from the major additive suppliers for further stabilization..." Office Action dated 2/14/2006 page 5, ¶ 2 to page 6, ¶ 1.

First, since claims 14 and 15 are dependent from claim 1, these are believed to be in a condition for allowance for the same reasons discussed above with respect to claim 1. For example, nowhere in Makino is there any teaching or suggestion that (meth)acrylate resin compositions can be formulated where component (C), (C) + (F) or (F) + (G) are omitted from the resin compositions comprising (A) and (B), and that such compositions would benefit from using a stabilizer.

In addition, claims 14 and 15 are believed to be in condition for allowance because Makino does not provide any teaching or suggestion to use of a combination of stabilizer and co-stabilizer as claimed by Applicant in claims 14 and 15 for the (meth)acrylate compositions. Nor does Makino provide any suggestion of the desirability of the stabilizer combination claimed by Applicant in claims 14 and 15. See MPEP § 2143.01, ¶ III. The Examiner provides no explanation as to why one of ordinary skill would have been motivated to make a modification to the stabilizers taught by Makino. Further, the Examiner fails to provide any support for his statement that the combination of stabilizer and co-stabilizer claimed by Applicant is a common, obvious combination. See Office Action dated 2/14/06, page 4, ¶1. Accordingly, based on the foregoing remarks, claims 14 and 15 are believed to be in condition for allowance.

G. Claim 17 are not Obvious Over Makino in View of Borden.

Claim 17, which depends from claim 1, recites (meth)acrylate resin composition where the accelerator is methyl hydroxyethyl paratoluidine, dimethyl paratoluidine, dihydroxyethyl paratoluidine or dihydroxypropyl paratoluidine and/or the initiator is benzoyl peroxide. As claim 17 is dependent on claim 1, it is believed to be in a condition for allowance for the same reasons discussed above with respect to claim 1.

In addition, Makino, in contrast to Applicant's claim 17, specifically teaches away from the use of the accelerators and initiator set forth in claim 17 in resin compositions. Makino teaches that "(w)hen using a redox-type polymerization initiator comprised of an organic peroxide and a tertiary amine ... there are problems that since an amine is used as a co-catalyst, the weathering resistance is poor and the cured covering yellows along with aging." See Makino, column 1, lines 26-32. Further, comparative Example 6 of Makino demonstrates the problems associated with yellowing. Id. columns 19 and 20, Table 2. Therefore, Makino does not teach or suggest, and in fact teaches away from, each and every limitation of Applicant's claim 17. Where a proposed modification would render the invention disclosed in a cited reference unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the modification. In re Gordon, 733 F.2d 900 (Fed. Cir. 1984). Accordingly, based on the foregoing remarks, claim 17 is believed to be in a condition for allowance.

H. Claims 19 are not Obvious Over Makino in View of Borden.

Claim 19 recites the adhesion promoter to be methacryl oxyethyl phosphate. As claim 19 is dependent on claim 1, it is believed to be in a condition for allowance for the same reasons discussed above with respect to claim 1. In addition, neither Makino or Borden, alone or in combination, suggest the use of methacryl oxyethyl phosphate as an adhesion promoter in (meth)acrylate resins as recited in claim 19. Accordingly, based on the foregoing remarks, claim 19 is believed to be in a condition for allowance.

IX. CONCLUSION

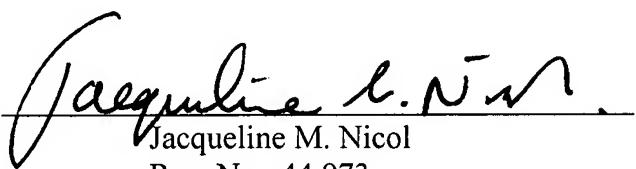
The rejections under 35 U.S.C. §103(a) fail because the cited art, either alone or in combination, fails to teach every element recited in the claims. As such, it is respectfully requested that this application be allowed.

The Examiner is invited to telephone the undersigned at the telephone number listed below if it would in any way advance prosecution of this case.

Respectfully submitted,

Dated: April 27, 2007

By


Jacqueline M. Nicol
Reg. No. 44,973

SQUIRE, SANDERS & DEMPSEY L.L.P.
Two Renaissance Square
40 North Central Avenue, Suite 2700
Phoenix, Arizona 85004-4498
(602) 528-4002

CLAIMS APPENDIX

1. (Previously Presented) A (meth)acrylate resin comprising:
20-85 % by weight (meth)acrylate;
10-40 % by weight of a polymer soluble in (meth)acrylate;
0.1-2 % by weight paraffin;
0-50 % by weight hydroxy(meth)acrylate; and
0.1-2 % by weight adhesion promoter, wherein the adhesion promoter is a phosphoric ester.
2. (Previously Presented) The (meth)acrylate resin as claimed in Claim 1, comprising:
30-40 % by weight (meth)acrylate;
25-35 % by weight of a polymer soluble in (meth)acrylate,
0.5-1 % by weight paraffin;
5-40 % by weight hydroxy(meth)acrylate; and
0.2-1.0 % by weight adhesion promoter.
3. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that the (meth)acrylate is methyl methacrylate.
4. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that the polymer soluble in (meth)acrylate comprises a (meth)acrylate homopolymer and/or a copolymer.

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5. (Original) The (meth)acrylate resin as claimed in claim 4, characterized in that the homopolymer is polymethyl methacrylate.
6. (Original) The (meth)acrylate resin as claimed in claim 4, characterized in that the copolymer is a copolymer of methyl methacrylate and butyl methacrylate, methyl methacrylate and ethyl acrylate or vinyl chloride and vinyl acetate.
7. (Original) The (meth)acrylate resin as claimed in claim 5, characterized in that the copolymer is a copolymer of methyl methacrylate and butyl methacrylate, methyl methacrylate and ethyl acrylate or vinyl chloride and vinyl acetate.
8. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that the hydroxy(meth)acrylate is hydroxyethyl methacrylate.
9. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that the (meth)acrylate resin further contains 1-10 % by weight cross-linking agent, preferably 1-3 % by weight.
10. (Original) The (meth)acrylate resin as claimed in claim 9, characterized in that the cross-linking agent is ethylene glycol dimethacrylate, 1,4 butanediol dimethacrylate and/or triethylene glycol dimethacrylate.

11. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that the (meth)acrylate resin further comprises 0.1 to 2 % by weight defoamer, preferably 0.1-1.0 % by weight (based on the (meth)acrylate resin).
12. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that the (meth)acrylate resin comprises further conventional additives, such as 0.1-2 % by weight co-stabilizer and/or 0.01-0.1 % by weight stabilizer.
13. (Original) The (meth)acrylate resin as claimed in claim 12, characterized in that the (meth)acrylate resin comprises 0.02 to 0.07 % by weight stabilizer and/or 0.5-1.0 % by weight co-stabilizer.
14. (Original) The (meth)acrylate resin as claimed in claim 12, characterized in that the stabilizer is 2,6 di-tert butyl-4-methyl phenol and the co-stabilizer is tri-(2,4 di-tert butyl phenyl)phosphite.
15. (Original) The (meth)acrylate resin as claimed in claim 13, characterized in that the stabilizer is 2,6 di-tert butyl-4-methyl phenol and the co-stabilizer is tri-(2,4 di-tert butyl phenyl)phosphite.
16. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that the (meth)acrylate resin further comprises 0.1-1.5 % by weight, preferably 0.4-0.8 % by weight, accelerator and 0.1-5 % by weight, preferably 2-4 % by weight initiator.

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17. (Previously Presented) The (meth)acrylate resin as claimed in claim 16, characterized in that the accelerator is methyl hydroxyethyl paratoluidine, dimethyl paratoluidine, dihydroxyethyl paratoluidine or dihydroxypropyl paratoluidine and/or that the initiator is benzoyl peroxide.
18. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that the paraffin comprises a mixture of different paraffins with different softening points, especially paraffins with a softening point between 46 and 48° C, paraffins with a softening point between 52 and 54° C and paraffins with a softening point between 63 and 66° C.
19. (Previously Presented) The (meth)acrylate resin as claimed in claim 1, characterized in that the adhesion promoter is methacryloyl oxyethyl phosphate.
20. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that the viscosity of the (meth)acrylate resin before curing is at least 250 mPa/s at D = 1,000 1/s or at least 300 mPa/s at D = 100 1/s.
21. (Original) The (meth)acrylate resin as claimed in claim 1, characterized in that colorants, such as color pigments or a dye paste, are also added to the (meth)acrylate resin.

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22. (Withdrawn) A method of repairing a pipe utilizing the (meth)acrylate resin of claim 1 wherein the method comprises applying the resin to the pipe to seal an opening.
23. (Withdrawn) The method of claim 22, characterized in that the pipe comprises material from one of the group consisting of stoneware, concrete and plastic.
24. (Withdrawn) The method of claim 22 wherein the pipe is a sewer pipe.
25. (Withdrawn) The method of claim 23 wherein the pipe comprises polyvinyl chloride.

EVIDENCE APPENDIX

None.

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RELATED PROCEEDINGS APPENDIX

None.